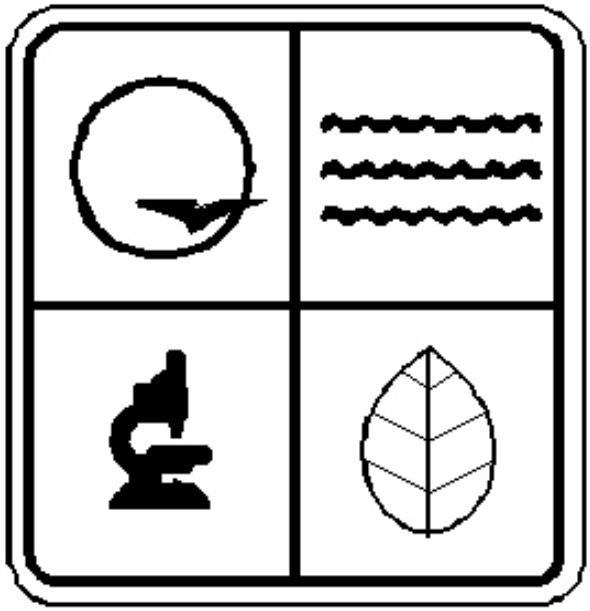
Perryville Baseline

EDM Calibration Baseline
Perry County, Missouri



Established by

Land Survey Program
Missouri Department of Natural Resources

1990

PERRYVILLE EDM CALIBRATION BASELINE

The baseline is located at the Perryville Memorial Airport near Perryville, Missouri in Perry County. The baseline runs parallel to the main runway approximately fifty feet West of the westerly edge of the concrete paving of the runway.

To reach the baseline from Perryville, take MO Highway 51 North approximately 9.3 miles to Perry County Route H. Turn left on Route H and proceed West approximately two miles to the public entrance of the airport.

The baseline consists of four points monumented with MO Department of Natural Resources aluminum monuments set in concrete flush with the ground surface. The mark at each station is a center-punched hole in the center of the monument. The 0m station is located approximately 50 feet West of the west edge of the concrete paving of the main runway and approximately 25 feet North of the north edge of the south taxiway. The 150m, 400m, and 1400m stations progress northerly parallel to the main runway all being approximately 50 feet West of the west edge of the concrete paving of the main runway. A removable plastic pipe guide pole is set next to each monument.

Users of the baseline must notify flight office personnel before occupying the baseline monuments. For safety reasons, users should not drive on the main runway itself, but along the shoulder or on the grass between the shoulder and the baseline monuments. Users are urged to exercise caution when driving along taxiways and near the runway, keeping a constant watch for aircraft.

The baseline station elevations are as follows:
0 meter - 112.78m
150 meter - 112.60m
400 meter - 112.63m
1400 meter - 113.03m

Electronic Distance Measuring (EDM) Calibration Baselines in Missouri

The Missouri Department of Natural Resources has established 12 Electronic Distance Measuring (EDM) calibration baselines in Missouri. Despite the fact that modern equipment is highly sophisticated and provides a direct readout of the distance to the nearest hundredth of a foot or millimeter at push of a button, it can also give an erroneous reading. The EDM baseline will allow the operator to verify that the instrument is in calibration and the instrument is being operated properly.

Each EDM baseline consist of 4 monumented stations. The monuments are spaced nominally at 0 meters, 150 meters, 400 meters and 1100 to 1375 meters. Each station will be occupied with the EDM equipment and a measurement made to the 3 other stations. This will give a total of 12 measurements. The results will determine the scale factor and a system constant for the EDM instrument.

The EDM operator should use the same procedures as in every day fieldwork. This will not only confirm that the equipment is in good working order, but will ensure the complete method of collecting data. The measuring system includes not only the instrument but the tripods, tribrachs, prisms, thermometers and barometers/altimeters as well.

WHEN TO CALIBRATE YOUR INSTRUMENT?

- Upon receipt of a new instrument
- Immediately after each servicing
- Anytime the operator feels the instrument is not working properly
- Before and after DNR or other government agency contracts

BEFORE RUNNING THE BASELINE PERFORM THE FOLLOWING

- Check and adjust optical plummets, bulls-eye bubbles and plumbing poles.
- Check thermometers and barometers/altimeters
- Make sure all tripods are rigid and stable
- Clean prisms
- Fully charge all batteries
- Have an EDM Calibration Report form for the baseline you are running.

When filling out the EDM Calibration Report form, fill in all lines that apply and add addition information if needed.

IMPORTANT NOTE

Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1000 feet, dividing 1000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

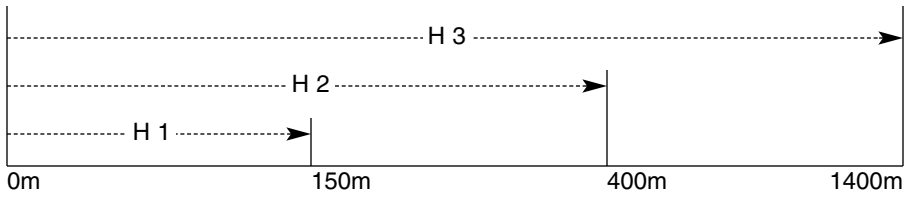
EDM CALIBRATION REPORT – PERRYVILLE EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

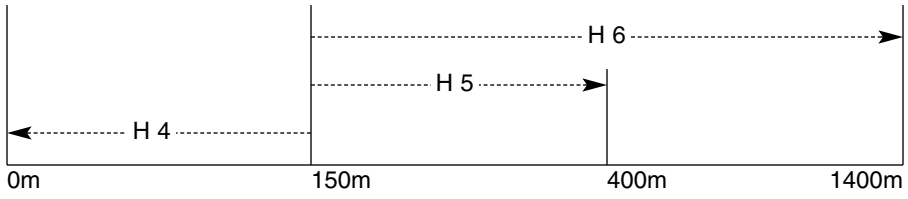
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m



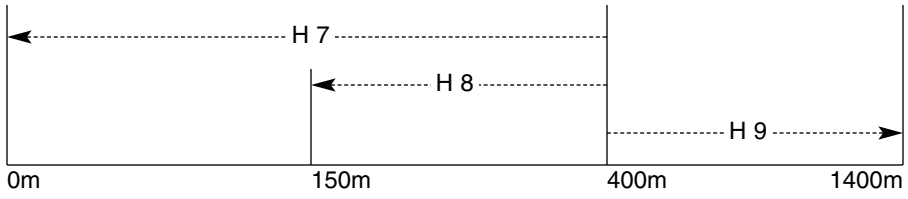
H 1 =	H 2 =	H 3 =	TEMP
H 1 = (149.9601m)	H 2 = (399.9830m)	H 3 = (1399.9828m)	*PRESS

E.D.M. AT 150m



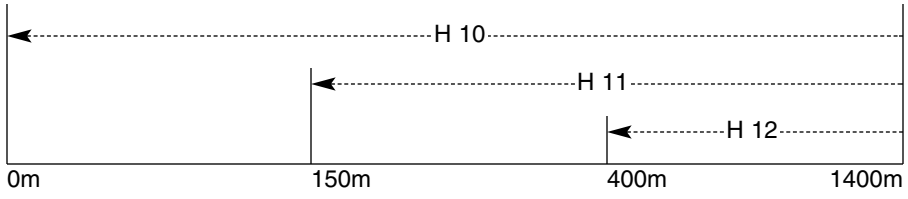
H 4 =	H 5 =	H 6 =	TEMP
H 4 = (149.9601m)	H 5 = (250.0229m)	H 6 = (1250.0227m)	*PRESS

E.D.M. AT 400m



H 7 =	H 8 =	H 9 =	TEMP
H 7 = (399.9830m)	H 8 = (250.0229m)	H 9 = (999.9999m)	*PRESS

E.D.M. AT 1400m



H 10 =	H 11 =	H 12 =	TEMP
H 10 = (1399.9828m)	H 11 = (1250.0227m)	H 12 = (999.9999m)	*PRESS

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

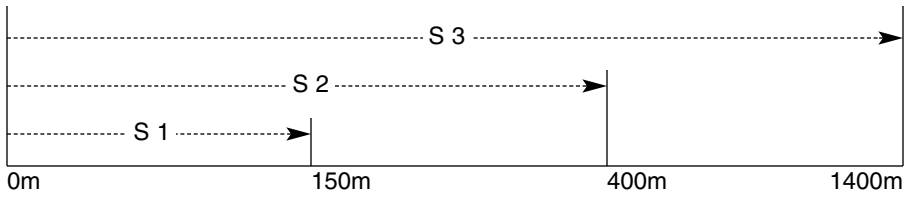
EDM CALIBRATION REPORT – PERRYVILLE EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

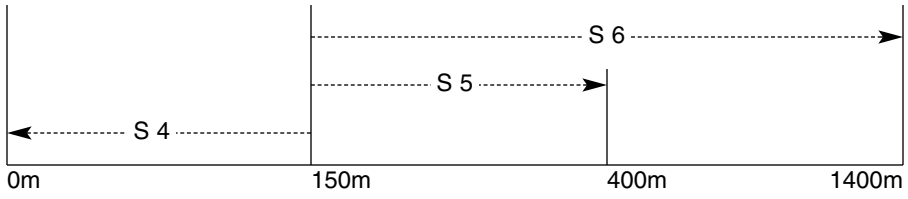
NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

E.D.M. AT 0m



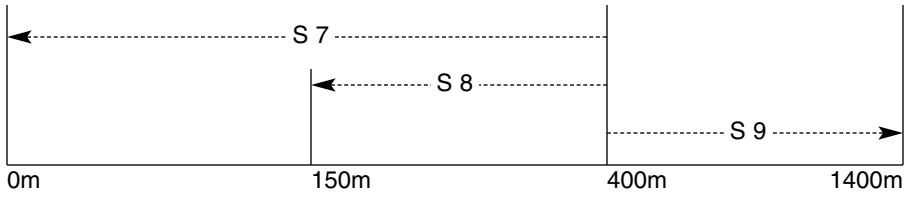
HI =	S 1 =	S 2 =	S 3 =	TEMP
	H 0 =	H 0 =	H 0 =	*PRESS

E.D.M. AT 150m



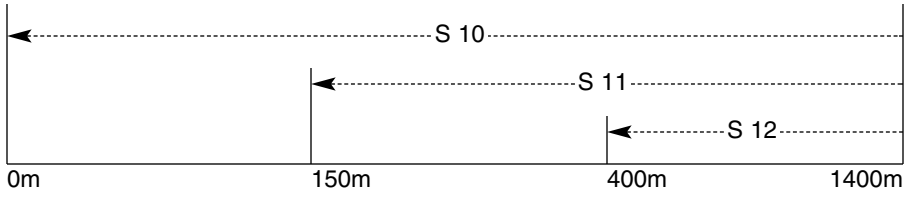
S 4 =	HI =	S 5 =	S 6 =	TEMP
H 0 =		H 0 =	H 0 =	*PRESS

E.D.M. AT 400m



S 7 =	S 8 =	HI =	S 9 =	TEMP
H 0 =	H 0 =		H 0 =	*PRESS

E.D.M. AT 1400m

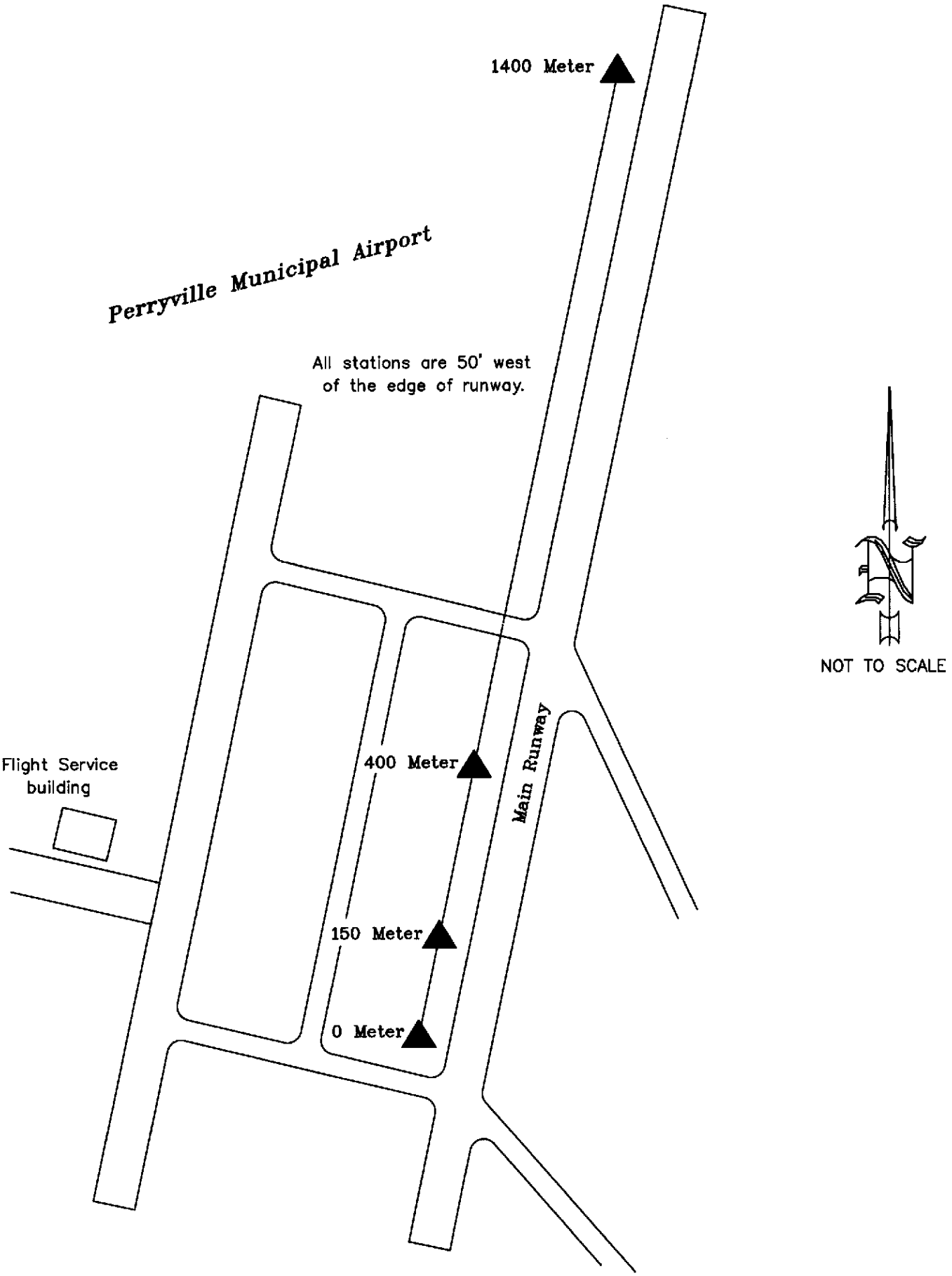


S 10 =	S 11 =	S 12 =	HI =	TEMP
H 0 =	H 0 =	H 0 =		*PRESS

Heights or delta elevations between monuments. Elevations (0m scaled from topo map)
0m = 112.78m 150m = 112.60m 400m = 112.63m 1400m = 113.03m

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

Perryville Baseline



DATE OF SKETCH 2003